

Obstetrical and Gynæcological Section.

President—Dr. M. HANDFIELD-JONES.

(July 1, 1915.)

Adenomyoma of the Recto-vaginal Septum.

By THOMAS G. STEVENS, F.R.C.S.

CONSIDERABLE attention has been directed recently to adenomyomatous growths arising in the uterus and invading the rectum, sigmoid, and other parts. In this country cases have been described by Cuthbert Lockyer, Herbert Spencer, Archibald Leitch, Gough and Stewart, and Sir John Bland-Sutton. In some of these, notably those of Lockyer, Spencer, and Leitch, the growth was low down on the back of the cervix, whilst in others it was situated in the body of the uterus, and had involved the bowel by contact across the peritoneum. Some of these growths can be demonstrated as having an origin from the endometrium, a leash of tubules being traceable, by serial sections, from the uterine mucous membrane to the growth. A consideration, however, of other cases reveals no such connexion, and consequently their origin cannot be definitely ascertained.

In 1909 I demonstrated before this Section of the Royal Society of Medicine a specimen of adenomyoma of the recto-vaginal septum, and, as far as I can ascertain, this was the first case of the kind described in this country. The patient was single and complained of menorrhagia and dysmenorrhœa. On examination, two small nodules were found beneath the vaginal mucosa behind the cervix, and one was also found in front, in addition to a somewhat enlarged uterus. The posterior nodules were free and movable, neither being larger than a Barcelona nut. The anterior one was more fixed, being attached to the vaginal mucosa. The posterior nodules were removed with difficulty

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owing to their mobility, but were found to have no attachment to the uterus, peritoneum, or rectum, and had around them a complete layer of connective tissue. Both nodules were typically adenomyomatous. The anterior nodule turned out to be a cyst lined by columnar epithelium and apparently had no relationship to an adenomyomatous growth. I ventured to suggest at the time that these growths were derived from Wolffian remnants, and pointed out the similarity of their structure to these remnants as seen in the hilum of the ovary and in the mesovarium (figs. 1 and 1A). [Referred to as Case I, &c.]

During the last eighteen months five more cases of this kind have come under my care, and the following is a brief description of them:—

Case II.—E. W., aged 25, was admitted to the Memorial Hospital, Mildmay Park, in October, 1914, on account of sterility. The patient had been married six years and had had no sign of pregnancy. The menstrual periods had been excessive since marriage, lasting six or eight days with a four-weekly periodicity. The periods were accompanied by abdominal pain at the onset. On examination the uterus was found to be vertical in position, not obviously enlarged, and no lesion of the tubes or ovaries could be detected. In the posterior fornix a hard, rather nodular mass was felt about the size of half a walnut, fixed to the posterior aspect of cervix, and closely adherent to the vaginal mucous membrane. This mass was only movable with the cervix. Seen through a speculum the surface of the vagina was somewhat puckered over the surface of the growth. The growth was dissected out with some difficulty along with the vaginal mucous membrane attached to it. The rectal muscle was seen very closely attached to the growth but was apparently not actually involved. Troublesome bleeding from a large artery occurred, necessitating leaving a Spencer Wells's forceps in the wound, as the vessel could not be securely tied. The wound healed without giving any trouble. Sections made through the whole of the tissue removed showed that the growth is an adenomyoma. Some of the tubules are dilated and some approach very close to the vaginal surface. The cut edge on the deep surface goes through the growth, so that it is highly probable that a portion has been left behind in the cervix. No rectal muscle is seen in the section. Fig. 2A is a drawing of the whole section of the growth magnified eight times. Fig. 2 shows the relative position of the growth.

Case III.—E. J., aged 42, married, complained of sterility, and excessive losses at the menstrual periods. The periods were regular, with a four-weekly periodicity, lasting only two to three days, but during this short time the loss was profuse. On examination the uterus was normal in size and position, but in the posterior fornix there was a small hard growth, over which the vaginal mucous membrane was movable. The growth was attached to the back of the cervix and could only be moved with it. The cervical tissues felt

unusually hard and rigid. The growth was so like that found in Case II, that the diagnosis of adenomyoma was made and its removal advised, the uterus to be dilated and curetted at the same time. This was done in November, 1914. Nothing of interest was found in the curetted uterine material. The

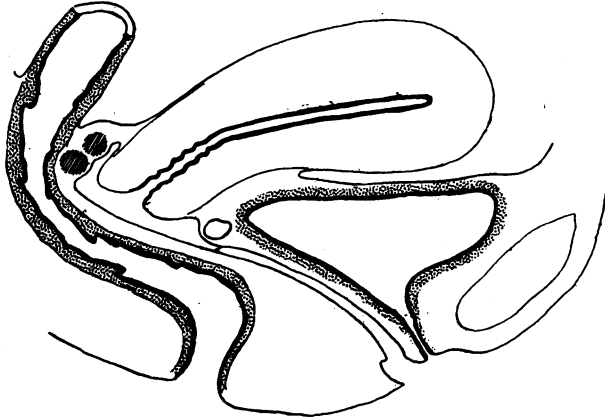


FIG. 1.

Shaded lines represent two small growths in the posterior fornix. Small cyst in anterior fornix. (Case I.)

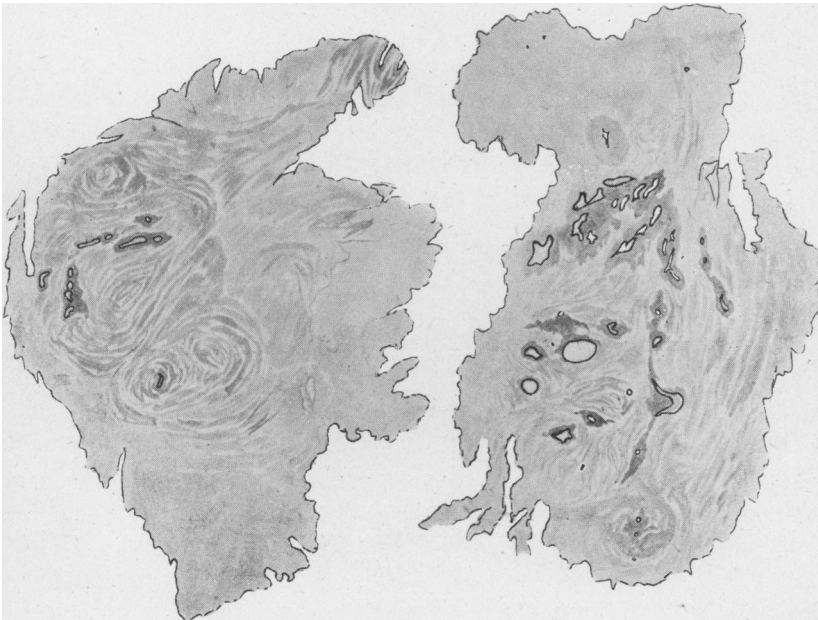


FIG. 1A

The deeply shaded parts are the tubules of the growth surrounded by smooth muscle ($\times 8$.)

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small growth had involved the muscular coat of the rectum, and a small piece of it was removed with the growth. The peritoneum of Douglas's pouch was also adherent to the growth and was opened during the operation. A small gauze drain was inserted through the peritoneal opening and the incision in the

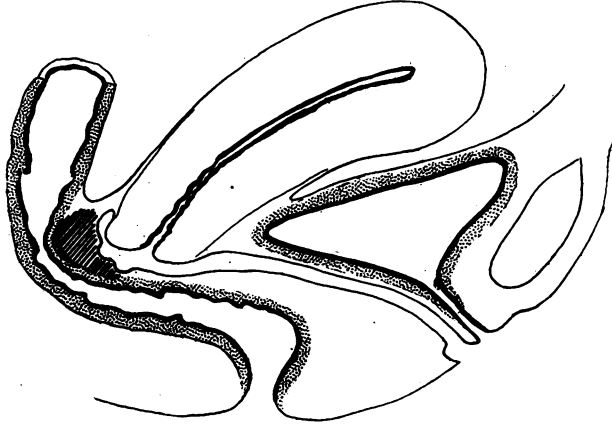


FIG. 2.

Shaded lines represent the growth in the posterior fornix. (Case II.)

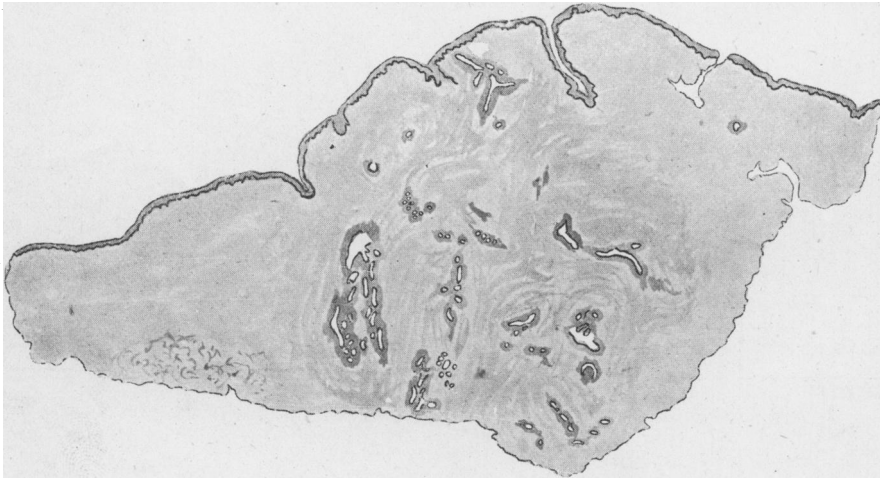


FIG. 2A.

Darkly shaded tubules of the growth ; vaginal mucous membrane above. ($\times 8$.)

vagina was sutured around it. There were no disturbances during the convalescence, the small wound being quite healed in ten days. A section of the whole growth, seen in fig. 3A, shows it to be an adenomyoma.

Case IV.—E. S., aged 43, married, three children, was admitted to St. Mary's Hospital in November, 1914, complaining of irregular bleeding—almost continuous loss—for the last three years. In addition the patient complained of something protruding from the vulva which had been taken for a prolapse.

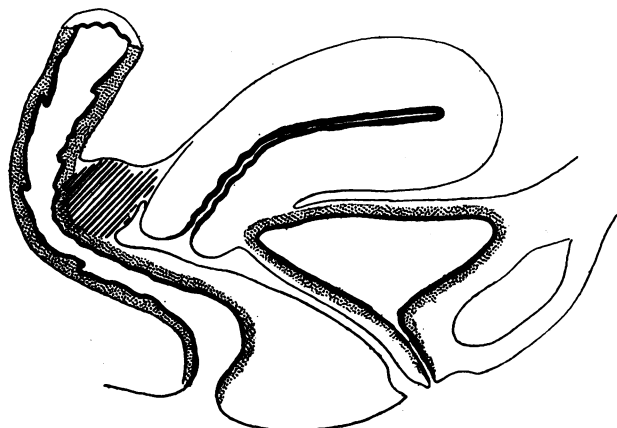


FIG. 3.

Shaded lines represent the growth in the posterior fornix. (Case III.)

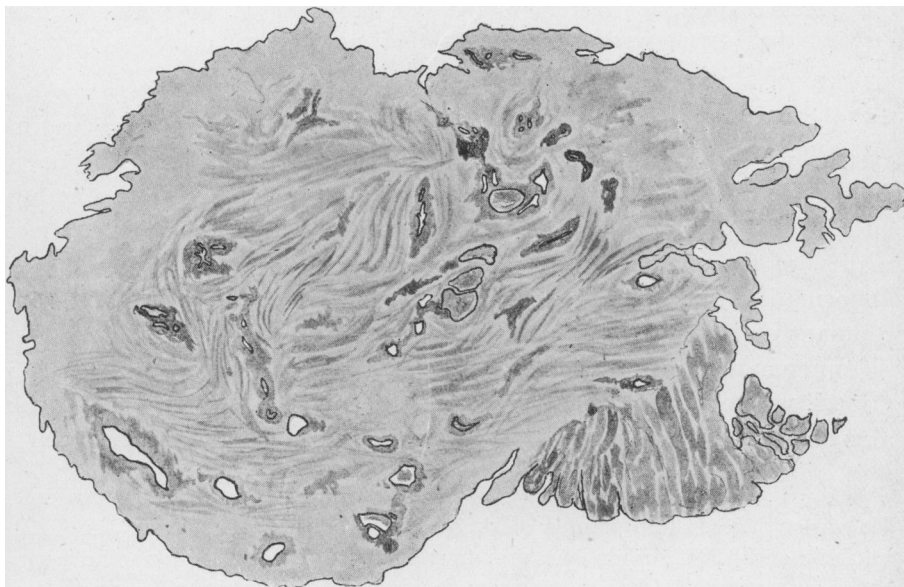


FIG. 3A.

The darkly shaded tubules of the growth. Fragment of rectal muscle coat in the right-hand lower corner. ($\times 8$.)

On examination, the vulvar protrusion proved to be a cyst of the postero-lateral part of the vaginal wall, rather bigger than a hen's egg. Its protruding surface was covered by dry skin, the rest by vaginal mucous membrane. It was arranged that the cyst should first be removed, and that the condition of the uterus should be investigated whilst under the anæsthetic. The cyst was easily dissected out entire, and its bed was closed by deep and superficial sutures. The uterus was found to be somewhat enlarged and irregularly nodular in shape. Although some dense induration was felt behind the cervix, this in conjunction with the nodular uterus was taken to be a cervical fibroid. Hysterectomy was performed a week after the removal of the cyst. In order to cut behind the indurated mass in the posterior fornix a pan-hysterectomy was performed. Whilst cutting into the vagina posteriorly below this mass it was found that the rectum had been widely opened. It turned out after examining the specimen that the indurated mass was really an adenomyoma of the recto-vaginal septum, which had involved the rectal wall and had drawn up a double fold of the rectum and fixed it closely to the cervix. The true pouch of Douglas was thus obliterated and what was taken for the pouch was really a fold of the rectal wall. In cutting into the vagina the top of this pouch was cut right off, and is seen in the section made from the specimen removed (fig. 4A). The hole thus made in the rectum was closed by a double row of sutures and gave no trouble during the convalescence. The adenomyomatous growth has the same structure as the other specimens, and its tubules can be seen penetrating right through the muscle coats of the rectum to the submucous tissue. Unfortunately the rest of the uterus was not kept, so that no attempt could be made to trace the origin of the growth.

It is very significant that in this case there was a large vaginal cyst as well as the adenomyoma. The vaginal cyst, there can be no doubt, is of Gartnerian origin, as it extended some distance up the lateral wall of the vagina. It seems possible that when one abnormality of the primitive sexual organs occurs, like this cyst, another abnormality like the adenomyoma may have arisen also from some remnant of the same apparatus, possibly a Müllerian duct abnormality. A somewhat similar coincidence, it may be remembered, occurred in Case I, where two small adenomyomata occurred in the posterior fornix, along with a cyst of probably Wolffian origin in the anterior fornix.¹

Case V.—X. Y., aged 41; two children, the last one nine years previously. No miscarriages. Complained of almost continuous bleeding from June, 1914, until October, 1914, when she was first seen. Previous to June the periods had been excessive for several years, lasting eight days every seventeen days. Curettage had been performed by another surgeon two years previously. On

¹ *Proceedings*, 1910, iii, p. 57.

examination, the uterus was found to be uniformly enlarged and was retroverted. It was a very heavy uterus, and in general suggested a condition of chronic metritis. Drug treatment had been tried by calcium lactate and other hæmostatics including ergot (which seemed to make the bleeding worse). As

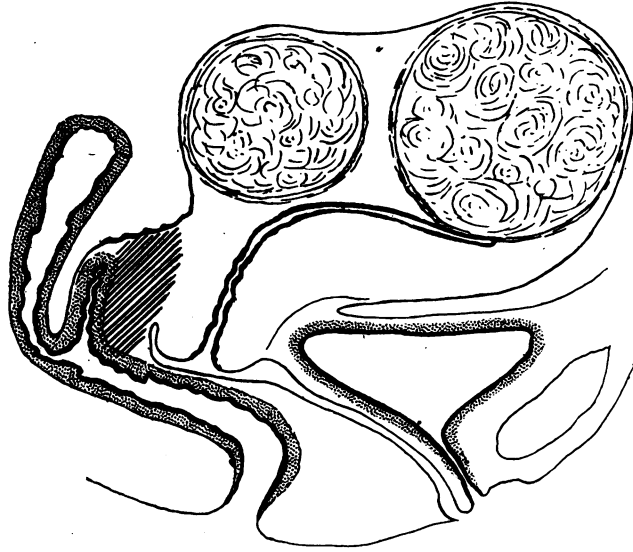


FIG. 4.

Growth in the posterior fornix and posterior wall of the cervix involving the rectum. (Case IV.)



FIG. 4A.

Shaded tubules of the growth; rectal muscle and mucous membrane above. ($\times 8$.)

the patient was very anæmic, and curettage had been tried, hysterectomy was advised. In performing panhysterectomy, a mass was felt low down at the junction of the cervix and vagina, over which the peritoneum was puckered

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and cicatricial looking. The vagina was opened below this mass and the uterus was removed. The patient did well until the fourteenth day after the operation, when she died suddenly from pulmonary embolism. The mass in the

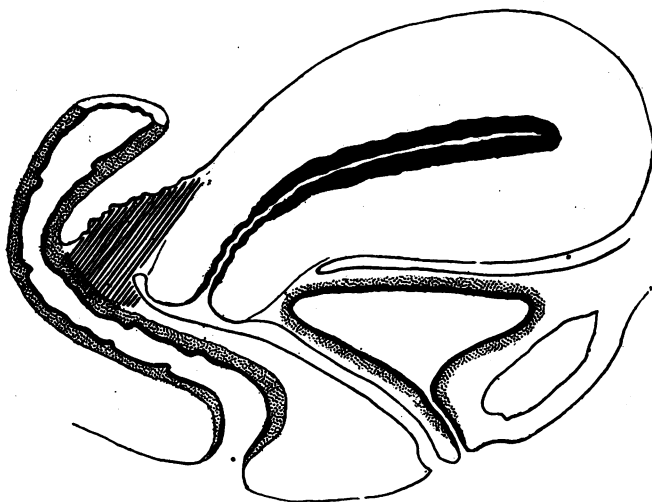


FIG. 5.

Growth in the posterior fornix and posterior wall of the cervix. (Case V.)

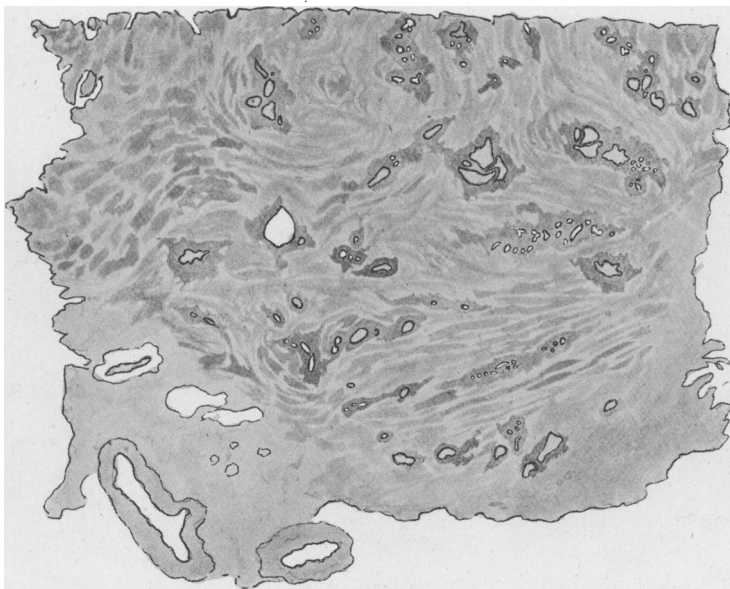


FIG. 5A.

Shaded tubules of the growth; rectal muscle above and to the left. ($\times 8$.)

posterior vaginal fornix on section proved to be an adenomyoma, not involving the vaginal or rectal walls, but involving the peritoneum, as described above. The uterus proved to contain no growth, but had the usual features of chronic metritis with considerable thickening of the mucous membrane in addition. Unfortunately the uterus was not preserved, but as far as could be seen by the naked eye there was no connexion between the adenomyoma and the endometrium. A section of the adenomyoma is seen in fig. 5A.

Case VI.—S. B., aged 46, single, was admitted to St. Mary's Hospital on January 11, 1915. The last menstrual period had occurred in November, 1914; before then the periods had been regular and not excessive. At the end of the last period a sudden profuse hæmorrhage occurred, which continued for

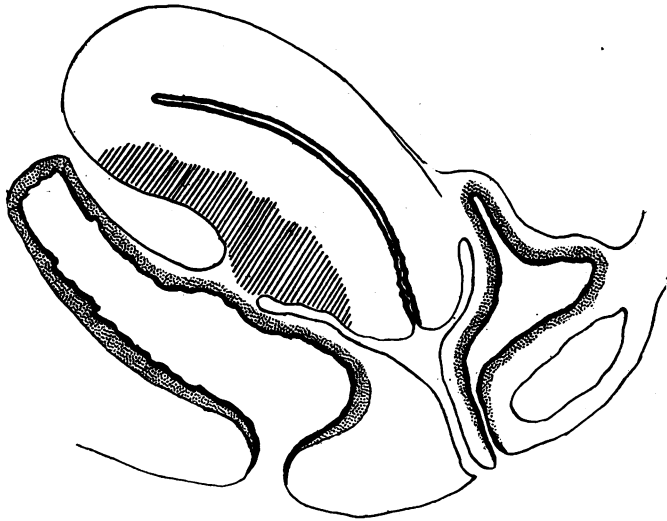


FIG. 6.

Growth in the posterior fornix and in the posterior uterine wall. (Case VI.)

a month. This ceased three weeks before admission, and was followed by a yellow discharge which was offensive. On examination, the uterus was found to be retroverted, fixed, and very tender. There was a hard mass in the posterior fornix, involving the vaginal wall, and apparently continuous with the body of the uterus. There was no evidence of any malignant growth in the cervix, but considering the history, the pain, and the doubtful nature of the mass in the posterior fornix, it was decided to perform panhysterectomy. The operation was somewhat complicated owing to the dense infiltration of the posterior vaginal fornix, and the distortion of the relationship of Douglas's pouch which had occurred as a result. After dissecting the rectum off the posterior vaginal wall, it was possible to open the vagina below the infiltrating mass and so complete the hysterectomy. The patient made a good recovery.

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The specimen, after removal, showed considerable distortion of the axis of the uterus owing to the cicatricial effect of the growth, which had drawn the vaginal wall up towards the posterior wall of the cervix and closely incorporated the two. A vertical median section of the uterus and vaginal wall showed a typical adenomyoma, involving about two-thirds of the length of the posterior

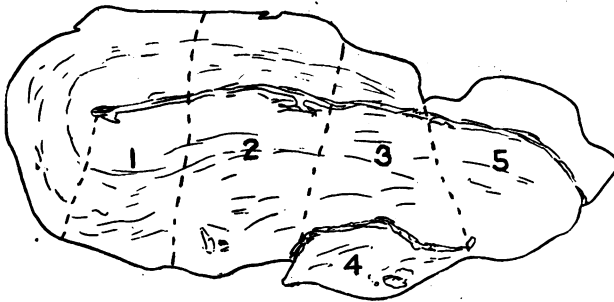


FIG. 6A.

The whole uterus, showing the places from which microscopic sections were made. (Case VI.)

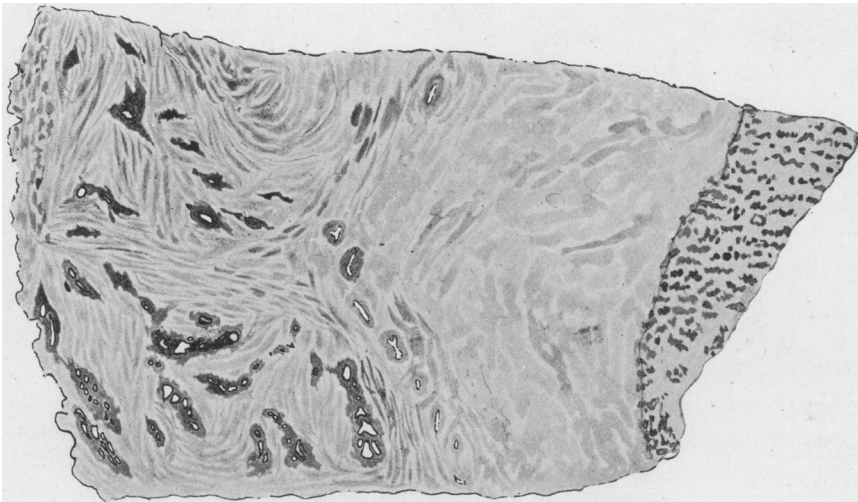


FIG. 6¹.

Shaded tubules of the growth; uterine muscle and mucous membrane to the right. ($\times 8$.)

wall of the uterus, but everywhere apparently separated from the endometrium by a thick layer of unaltered uterine muscle. Sections were made from the whole length of the posterior uterine wall, as shown in fig. 6A. All these sections, except that which includes the vaginal portion of the cervix, contain

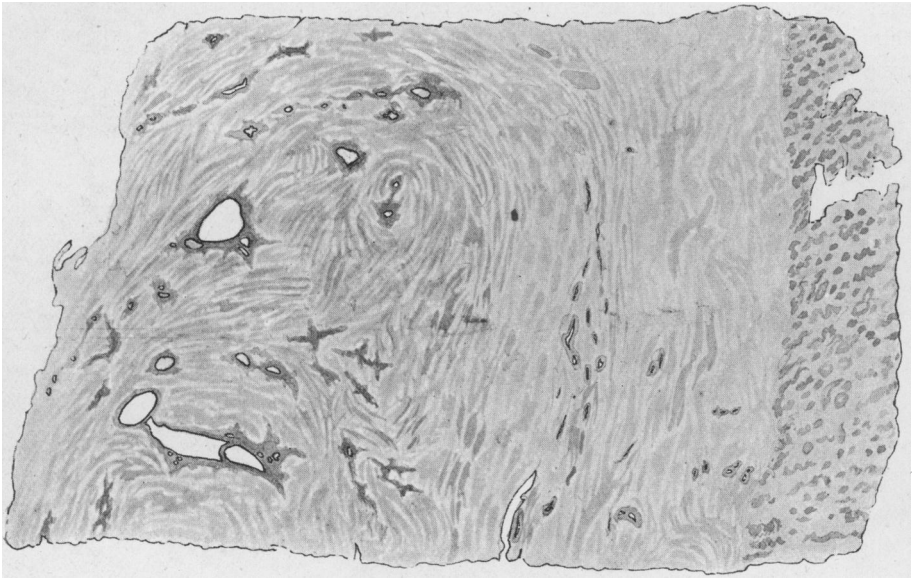


FIG. 6².

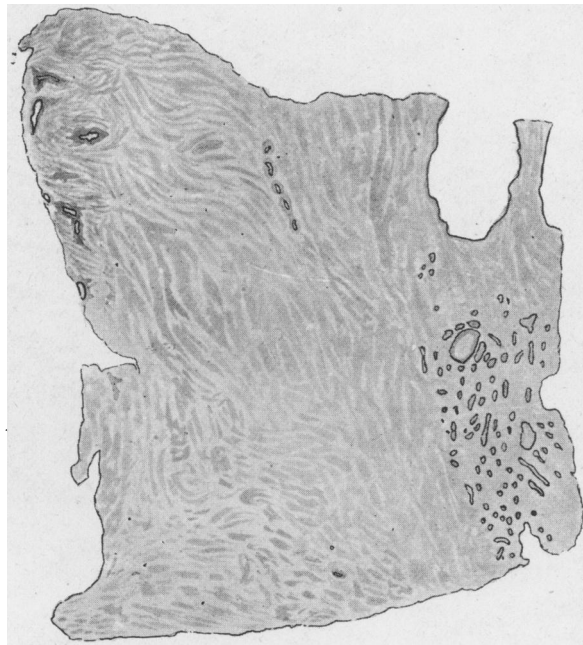


FIG. 6³.

Very little growth to the left and above ; uterine mucosa to the right. ($\times 8$.)

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part of the adenomyomatous growth. The growth involves the peritoneum on the posterior uterine wall, but is everywhere separated from the endometrium by a layer of uterine muscle, about a centimetre or a little more thick. The line of junction of the growth and the uterine muscle in some sections, is at the plane where most of the big arterial branches are found. Microscopically the

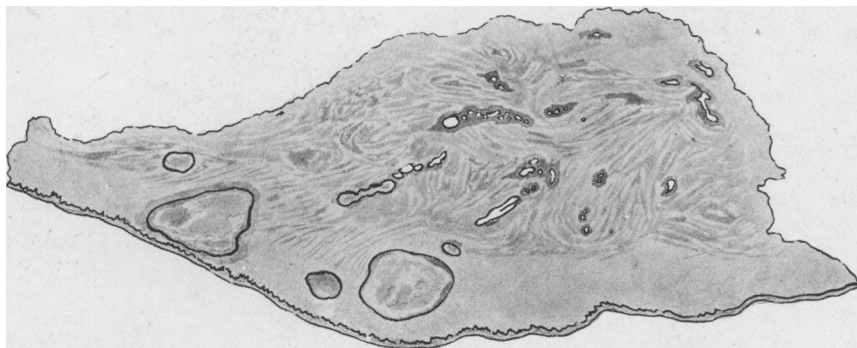


FIG. 6⁴.

Vaginal mucous membrane below ; growth tubules in upper part. ($\times 8$.)

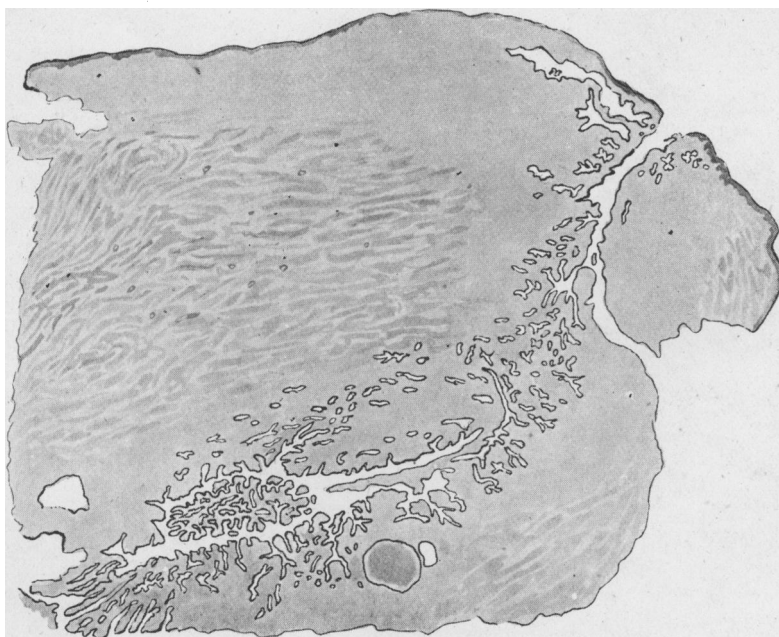


FIG. 6⁵.

Cervical portion of the uterus ; no growth. ($\times 8$.)

growth has the same characters as that seen in all the other cases. No communication through the uterine muscle with the endometrium is found in any of the sections. Slices made through the uterus in other planes also fail to show any communication when examined with a hand lens. The large extent of the growth in this case would have made an endometrial origin most probable, but this cannot be substantiated by any of the sections. Figs. 6¹, 6², &c., are the drawings of the sections.

REMARKS.

First, it must be noted that in all these cases except, perhaps, the last the growths must be regarded as accidental discoveries, and apparently have no direct relationship to the symptoms complained of. In one case (I) the symptoms were menorrhagia and dysmenorrhœa, in two (II and III) the only important complaint was sterility, whilst in the other three bleeding was the chief symptom, due in one case to fibroids of the body of the uterus, in another to chronic metritis, and in the last to some unexplained general condition associated with the menopause. It can hardly be expected that menorrhagia could be caused by these growths in Case I, as they were quite isolated nodules in the recto-vaginal septum, moreover, the excessive loss was cured by curettage, so that diffuse adenomyoma of the endometrium can be excluded.

Sterility is often difficult to explain, and yet it can hardly be alleged that these growths were the cause of it in Cases II and III. The growths were limited to the posterior fornix, but at the same time were closely adherent to the back of the cervix, and by their dense character must have fixed the cervical tissues and impaired their pliability. Is it possible that this fixation might interfere with the entrance of spermatozoa into the cervical canal? Neither patient has yet become pregnant, and even if they had become so it could not be accepted that the removal of the growth had favoured conception. In Cases IV and V there was so marked a lesion in the body of the uterus (fibroids in one and chronic metritis in the other) that it was unnecessary to look any further for the cause of the bleeding. Even in the last case, where there was no demonstrable cause for the single copious hæmorrhage, the growth can hardly be blamed, as it cannot be shown to affect any portion of the endometrium.

The *site* in which these growths are found in all my cases was the recto-vaginal septum. Perhaps it is not quite correct to say the septum, because it was really in the loose connective tissue above the posterior

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fornix, which is bounded by the back of the cervix in front, the rectum behind, and the peritoneum above. Other sites have, however, been described. I have a specimen of one of these growths in the round ligament, another in this situation was described by Lecène, and Klager has described one in relation to a ventrofixation cicatrix, but that one was really attached to the anterior wall of the uterus.

The *diagnosis* of these growths is usually easy. To the finger they present hard, nodular masses, usually in the posterior fornix, although there seems to be no reason why they should not occur in front or at the side of the uterus. Usually they are fixed to the back of the cervix and only movable with it. They are not tender to the touch, and they do not necessarily cause any pain. When they involve the rectal wall they can be felt *per rectum* fixing its wall to the vaginal wall more firmly than usual.

Prognosis.—It is difficult to appraise the importance of these growths, as regards symptoms and as regards danger to life. From the cases cited it certainly appears as if symptoms are only likely to be caused when the growths are of long standing, and have involved the rectum to a considerable degree. Nothing is known as to their rate of growth or the age at which they commence, and consequently, their life-history can only be worked out by keeping cases under observation, if necessary for years, without operative interference. It may be asked, is it necessary to remove these growths at all? In my first three cases the removal of the growths was deliberately undertaken, because their nature was obscure, and the possibility of malignancy could not be excluded. Also in Cases I, II and III other operations were indicated (dilatation and curettage), so that it was thought that the patient would not be exposed to any undue risk if the growths were removed as well. In the last three cases the growths had to be removed in order to complete the operation of hysterectomy on other grounds. If the growths can be diagnosed with certainty, and it certainly seems as if they can, there is no urgent necessity to remove them unless some radical operation is indicated on other grounds. On the other hand, it seems inevitable that these growths must sooner or later involve the rectum, and bearing in mind Lockyer's case in which the rectum was so narrowed that a colostomy must have become necessary, it seems that for this reason their early removal is indicated.

Operative Technique.—The removal of these small growths *per vaginam* is by no means a simple matter. Their adhesion to the back of the cervix, and the manner in which they involve the rectum and

the peritoneum of Douglas's pouch constitute technical difficulties. In Cases II and III the growth had to be dissected out from the rectal muscle, leaving practically only mucous membrane over a small area, and in Case III the peritoneum was opened during the dissection. It is as well, where possible, to pucker the rectal muscular coat with a buried catgut suture, so as to support the denuded mucous membrane, before closing the vaginal incision. In the second case, a large vessel was opened at the bottom of a rather deep hole behind the cervix and a Spencer Wells's forceps had to be left upon it, as it was impossible to tie the vessel securely. Thus it is seen, that unless great care is exercised, the rectum might easily be opened during the operation and its closure would be extremely difficult. Similar difficulties arise when the growths are being removed by the abdominal route during hysterectomy. In Case IV the rectum was widely opened before it was recognized that the bowel was even involved. In Cases V and VI most careful dissection was necessary in order to avoid opening the bowel, and sutures had to be placed in the rectal wall to pull the muscle together. In none of the cases were there any symptoms referable to the rectum during convalescence, and no fistulæ resulted.

Now that further knowledge of the nature of these growths has accumulated, it seems highly probable that in Cases II and III the growths must have been incompletely removed, part having been left behind in the wall of the cervix. These cases will be kept under observation to see whether the tumours continue to grow.

Histology.—The microscopic appearance of these growths has already been well described, both in my original communication in 1909 and also by later writers on the subject. They have precisely the same structure as a diffuse adenomyoma of the endometrium, but as a rule the gland tubules surrounded by endometrial stroma are few in number, whilst the smooth muscle and fibrous tissue surrounding them are relatively abundant. The tubules are thus often widely separated from one another. The tubules are often dilated and cystic, showing that they must have secretory powers to some extent. They not infrequently contain blood, or old blood pigment, suggesting that sometimes they share in the menstrual function. It must be admitted, however, that the number of tubules containing blood is comparatively small. The tubules are lined by moderately long columnar epithelium like that of the body of the uterus, but not showing any evidence of cilia. The stroma immediately outside the tubules is composed of cell elements exactly like the stroma of the endometrium. The amount of it varies

considerably, but no tubules are found entirely without it. The fibromuscular part of the tumour is clearly a definite new growth, composed of bundles of smooth muscle cells in a fibrous stroma, like a fibromyoma. Although there is no capsule around these tumours, the arrangement of the fibromuscular tissue is such that the growth is quite sharply marked off from the uterine muscle coats. This line of demarcation can be seen both with the naked eye and microscopically in the specimen Case VI, in which the whole uterus and growth has been preserved. The appearance of sections stained by Van Gieson's method gives the impression that there is more fibrous tissue and less muscle tissue in the growth than there is in the uterine wall. This accounts, perhaps, for the somewhat greater hardness of the growth than that of the uterine wall, and also for the line of demarcation between the two. In none of the specimens was anything found suggestive of an inflammatory lesion: thus there seems to be no warrant for the name "adenomyositis," which some writers have given to the condition.

Causation.—The origin of these tumours is still far from settled. The possible sources which have been suggested are: (1) The endometrium; (2) Müllerian remnants in the recto-vaginal septum; (3) Wolffian remnants in this situation, and (4) the peritoneal endothelium. Recent writers, especially Leitch, have been inclined to favour the endometrium as the source of all adenomyomata, including those which, apparently, are isolated in the recto-vaginal septum. The suggestion is that endometrial tubules grow out through the muscular coats of the uterus, accompanied by their own stroma and by a new growth of fibro-muscular tissue. This is obviously the case in the more common instances of diffuse adenomyomata of the endometrium, and the continuity of the tubules with the endometrial glands is easily demonstrated. In the case of growths in the recto-vaginal septum, however, the distance from the endometrium is considerable, and although it has been done, it is difficult to trace the continuity of the growth tubules with the endometrial glands. It is quite possible, too, that the connexion between the two has been completely lost during the process of growth. Once started, however, the tumour continues to grow whether it preserves its connexion with the endometrium or not. Case VI was the only one of this series in which any attempt was made to trace the origin of the growth to the endometrium, and it must be said that no such connexion can be demonstrated, either by the aid of a hand lens or by means of microscopic sections. The two isolated tumours in Case I were so small, and so absolutely movable and unconnected with

the uterus, that it seems highly improbable that they could have originated from the endometrium. In all the other cases the growth was closely connected with the back of the uterus, so that the endometrial origin was at least possible. My original view that these isolated growths were derived from Wolffian remnants is, I think, now untenable. The possibility, however, that they are derived from the Müllerian ducts, at the place where the fused ducts join the solid mass of cells from which the vagina is developed, cannot be disproved. The actual mode of formation of the vagina is not yet settled, and it is, at all events, possible that groups of cells might become detached from the hinder end of the Müllerian ducts, and by taking on separate growth and canalization, might form a new growth resembling the endometrium. The method of origin, that these growths are derived from the peritoneal endothelium, appears to me to be an unnecessary theory, when two, at least, of the other three theories seem to be so much more likely. Tubular structures certainly are sometimes seen in the broad ligaments which appear to be of peritoneal origin, but they are never associated with endometrial stroma or with a new growth of muscle and fibrous tissue. In none of the cases hitherto described has the possibility of an endometrial and Müllerian origin been absolutely negatived.

(February 3, 1916.)

A Speculum-Camera.

By HERBERT R. SPENCER, M.D., and E. A. BARTON, M.R.C.S.

FOR many years we have been impressed with the desirability of obtaining photographic records of tumours and other affections of the cervix and vagina, for which the ordinary methods of photography are not suitable. The "speculum-camera" fulfils this purpose. The instrument was put in hand by the maker (James Sinclair and Co.) in May, 1914. Various circumstances have delayed our bringing the instrument to the notice of the profession, and in the meantime (in July, 1914) Dr. Max Cheval¹ has published an account of an instrument for photographing the cervix uteri which differs from ours essentially in the fact that the camera and stand have to be brought up to the speculum in

¹ Max Cheval, "La photographie du col utérin," *Journ. belge de Gyn. et d'Obstét.*, July, 1914.